

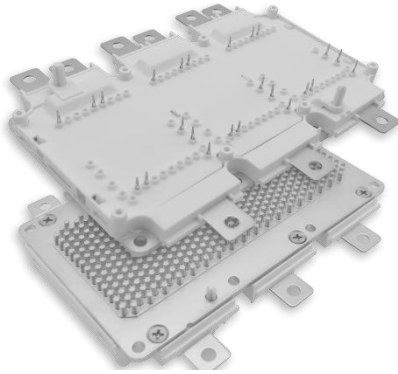
# 合肥中恒微半导体有限公司

## HeFei Cpower Technology.,Ltd.

### 6H002E120T1P



#### ➤ 产品外观 / Appearance



$V_{DSS} = 1200V$

$R_{DS(on)} = 2m\Omega$

$I_{D\ nom} = 800A / I_{DRM} = 1600A$

#### ➤ 特性 / Features

- |                    |   |
|--------------------|---|
| A. 低损耗             | A. Low Loss                                       |
| B. 高频应用            | B. High Frequency Operation                       |
| C. 功率端子超声焊接        | C. Ultrasonic Welding of Power Terminals          |
| D. Pinfin基板和氮化硅绝缘体 | D. Pinfin Baseplate and Silicon Nitride Insulator |
| E. MOSFET 关断不含拖尾电流 | E. Zero turn-off tail current from MOSFET         |

#### ➤ 用途 / Applications

- |           |                                     |
|-----------|-------------------------------------|
| A. 电机传动   | A. Motor Drives                     |
| B. 电动汽车应用 | B. Electrical Vehicles Applications |
| C. 大功率变流器 | C. High Power Converters            |

#### ➤ 相关信息 / Related Information

条形码 / Barcode Code



二维码 / DMX – Code



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# 6H002E120T1P

## 场效应管/MOSFET



### 最大额定值 / Maximum Rated Values

漏极-源极电压 Drain-source voltage	$T_j = 25^\circ\text{C}$	$V_{DSS}$	1200	V
漏极直流电流 Continuous Drain Current	$V_{GS} = 15\text{V}, T_F = 60^\circ\text{C}, T_{j\max} = 175^\circ\text{C}$	$I_{D\text{ nom}}$	800	A
最大脉冲漏电流 Pulsed drain current		$I_{D\text{ pulse}}$	1600	A
栅极-源极电压 Gate-source voltage		$V_{GSS}$	-10/+20	V
存储结温 Operating and Storage Temperature Range		$T_{stg}$	-40 to +150	$^\circ\text{C}$
结温 Junction temperature		$T_j$	175	$^\circ\text{C}$

### 特征值 / Characteristic Values

		Min.	Typ.	Max.	
漏源通态电阻 Drain-source on resistance	$I_D = 800\text{ A}, V_{GS} = 20\text{ V}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$R_{DS\text{ on}}$	2.00 4.86 5.42	3.00	m $\Omega$
栅极阈值电压 Gate threshold voltage	$V_{DS} = V_{GS}, I_D = 160\text{ mA}, T_j = 25^\circ\text{C}$	$V_{GSth}$	2.00	3.05	4.10 V
栅极电荷/Gate charge	$V_{DD} = 1000\text{ V}, V_{GS} = -4/+18\text{ V}, I_D = 800\text{ A}$	$Q_G$	1.50		$\mu\text{C}$
内部栅极电阻 Internal gate resistor	$T_j = 25^\circ\text{C}$	$R_{Gint}$	2.60		$\Omega$
输入电容 Input capacitance	$V_{DS} = 800\text{ V},$ $f = 100\text{ kHz},$ $V_{AC} = 25\text{ mV},$ $T_j = 25^\circ\text{C}$	$C_{iss}$	30.7		nF
输出电容 Output capacitance		$C_{oss}$	1.20		nF
反向传输电容 Reverse transfer capacitance		$C_{rss}$	0.063		nF
栅极-源极短路漏极电流 Zero gate voltage drain current	$V_{DS} = 1200\text{ V}, V_{GS} = 0\text{ V}, T_j = 25^\circ\text{C}$	$I_{DSS}$		800	$\mu\text{A}$
栅极-源极漏电流 Gate-source leakage current	$V_{GS} = 20\text{ V}, V_{DS} = 0\text{ V}, T_j = 25^\circ\text{C}$	$I_{GSS}$		4.00	$\mu\text{A}$
开通延迟时间 Turn-on delay time	$I_D = 800\text{ A}, R_G(\text{ext}) = 5\Omega$ $V_{DD} = 600\text{ V},$ $V_{GS} = -4/+18\text{ V}$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$t_{d\text{ on}}$	81.6 72.8 76.0	ns
上升时间/Rise time		$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$t_r$	78.7 73.2 69.0	ns
关断延迟时间 Turn-off delay time		$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$t_{d\text{ off}}$	138 156 165	ns
下降时间/Fall time		$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$t_f$	42.0 42.0 42.0	ns
开通损耗能量 Turn-on energy loss		$I_D = 800\text{ A}, V_{GS} = -4/+18\text{ V}$ $V_{DD} = 600\text{ V}, R_G(\text{ext}) = 5\Omega$ Load=77uH	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$E_{on}$	6.3 7.4 7.6
关断损耗能量 Turn-off energy loss		$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$E_{off}$	8.2 8.7 9.1	mJ

结 - 外壳热阻 Thermal Resistance Junction-to-Case	$T_c=90^{\circ}\text{C}$ , $P_D=150\text{W}$	$R_{thJC}$			0.12	$^{\circ}\text{C}/\text{W}$
在开关状态下温度 Temperature under switching		$T_{j\text{ op}}$	-40		150	$^{\circ}\text{C}$

## 体二极管电气特性 / Body diode electrical characteristics

二极管正向电流 Body diode electrical characteristics	$T_{vj} = 175^{\circ}\text{C}$ , $V_{GS} = -5\text{ V}$ , $T_F = 60^{\circ}\text{C}$	$I_{SD}$		280		A
正向电压/Forward voltage	$I_{SD} = 400\text{ A}$ , $V_{GS} = -5\text{ V}$ , $T_c = 25^{\circ}\text{C}$	$V_{DSR}$		4.8		V
峰值反向恢复电流 Peak reverse recovery current	$I_{SD} = 400\text{ A}$ , $V_{GS} = -10\text{ V}$ $-diS/dt = 4.50\text{ kA}/\mu\text{s}$ , $VR = 600\text{ V}$	$I_{rrm}$		177		A
反向恢复能量 Reverse recovery energy	$I_{SD} = 400\text{ A}$ , $V_{GS} = -10\text{ V}$ $-diS/dt = 4.50\text{ kA}/\mu\text{s}$ , $VR = 600\text{ V}$	$E_{rec}$		0.7		mJ

## 负温度系数热敏电阻 /NTC-Thermistor

			Min.	Typ.	Max.	
额定电阻/Rated-resistance	$T_C = 25^{\circ}\text{C}$	$R_{25}$		5.00		k $\Omega$
R100偏差/Deviation of R100	$T_C = 100^{\circ}\text{C}$ , $R_{100} = 477\Omega$	$\Delta R/R$	-5		5	%
功率损耗/Power dissipation	$T_C = 25^{\circ}\text{C}$	$P_{25}$			20	mW
B值/ B-value	$R_2 = R_{25} \exp [B_{25}/50(1/T_2 - 1/(298,15\text{ K}))]$	$B_{25}/50$		3375		K
B值/ B-value	$R_2 = R_{25} \exp [B_{25}/80(1/T_2 - 1/(298,15\text{ K}))]$	$B_{25}/80$		3425		K
B值/ B-value	$R_2 = R_{25} \exp [B_{25}/100(1/T_2 - 1/(298,15\text{ K}))]$	$B_{25}/100$		3443		K

## Package

### Insulation Coordination

隔离试验电压/Isolation test voltage	RMS, $f = 50\text{ Hz}$ , $t = 30\text{ s}$	$V_{ISOL}$	3.8	kV
内部隔离/Internal Isolation	basic insulation (class 1, IEC 61140)		$\text{Si}_3\text{N}_4$	
爬电距离/Creepage distance	terminal to heatsink	dCreep	9.0	mm
爬电距离/Creepage distance	terminal to terminal	dCreep	9.0	mm
间距/Clearance	terminal to heatsink	dClear	4.5	mm
间距/Clearance	terminal to terminal	dClear	4.5	mm
相对漏电起痕指数 Comparative tracking index		CTI	> 200	

## Characteristic Values

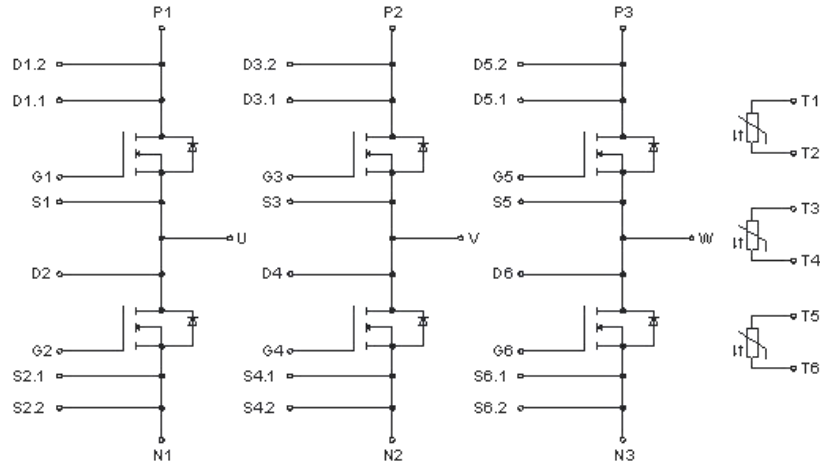
		Min.	Typ.	Max.	
杂散电感模块/Stray inductance module	LsCE	-40	8.5		nH
储存温度/Storage temperature	Tstg	20		125	°C
夹具的安装力/Mounting force per clamp	F			50	N
重量/Weight	G		730		g

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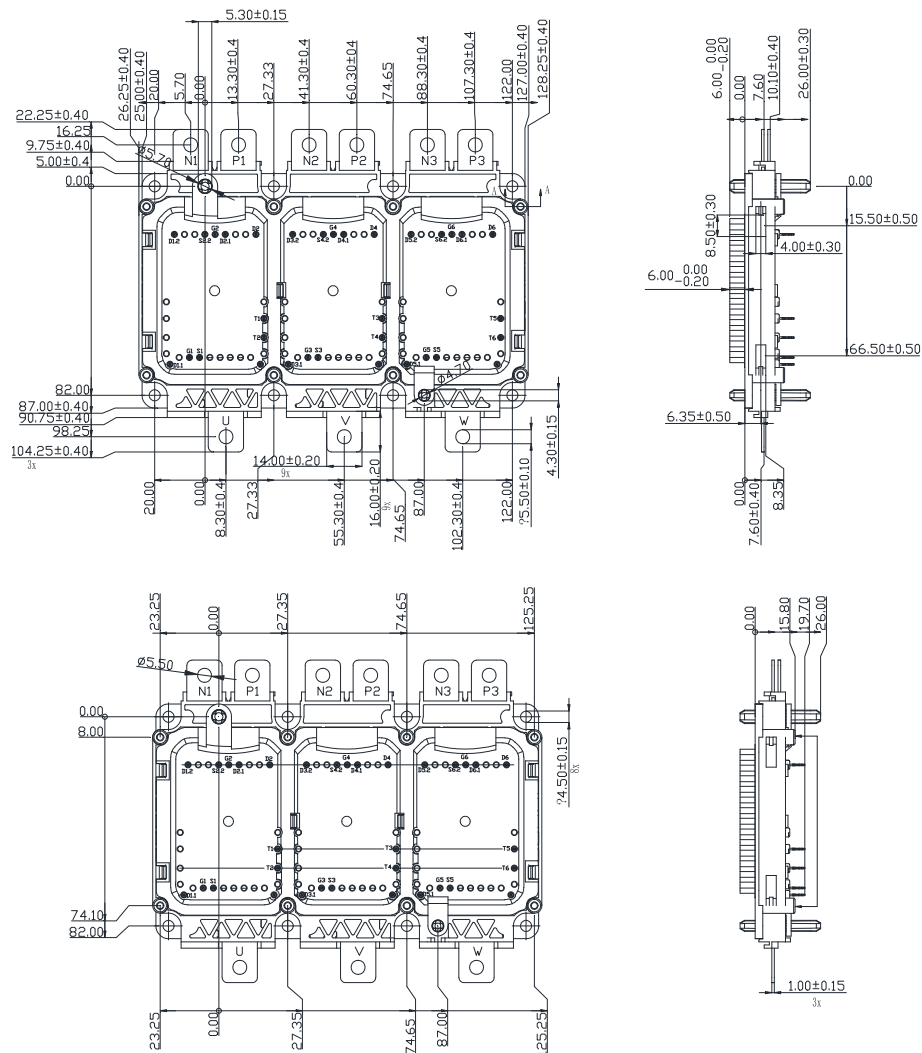
## 封装 / Package



## 接线图 / Circuit Diagram



## 外形图 / Outline



# 6H002E120T1P

## 使用条件及条款

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